

Appl. No. 10/809,384
Amendment dated: July 13, 2005
Reply to OA of: March 14, 2005

REMARKS

Applicants have amended the claims to more particularly define the invention taking into consideration the outstanding Official Action. Applicants most respectfully submit that all the claims now present in the application are in full compliance with 35 U.S.C. §112 and are clearly patentable over the references of record.

The objection to the drawing with respect to claim 17 has been noted. Claim 17 has been canceled from the application thereby obviating this objection. The cancellation of claim 17 also obviates the prior art rejections of this claim and these rejections should also be withdrawn. No corrected drawings are therefore necessary and confirmation of acceptance of the drawings in the next Official Action is most respectfully requested.

The rejection of claims 5 and 17 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been carefully considered but is most respectfully traversed in view of the amendment canceling claims 5 and 17 from the application. Accordingly, this amendment obviates all of the rejections under 35 USC 112, first and second paragraphs and withdrawal of these rejections are most respectfully requested.

The rejection of claims 1-4 and 12-13 under 35 U.S.C. §102(b) as being anticipated by Nakamura has been carefully considered but is most respectfully traversed in view of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to MPEP § 2131 which states that to anticipate a claim, the reference must teach every element of the claim.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical

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invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed.Cir. 1990).

In the presently claimed invention, the reinforced bumps are interposed between the chip and the substrate **with no electrically conductive function, and connect the first central area and the second central area.** See for example, page 5 of applicants' specification for epoxy bumps. The bumps of the flip chip package prevent the package from being damaged because the reinforced bumps interposed between the chip and the substrate can enhance the bonding strength of the chip to the substrate.

On the contrary, in the cited Nakamura reference, the non-power supply and non-ground external signal electrode is disposed between the power supply electrode and the ground electrode so as to prevent shorting between a power supply electrode and a ground electrode. This citation does not disclose anything about the reinforced bumps or anything about the package can be prevented from being damaged in accordance with the presently claimed invention. The Nakamura US 6,225,702 patent is not the same as the presently claim invention and therefore does not anticipate claim 1 and for this reason none of the other claims included in the anticipation rejection which are dependent on claim 1 and include the limitations not described or suggested by the prior art. Accordingly, it is most respectfully requested that the anticipation rejection be withdrawn.

Applicants wish to note that claim 1 has not been rejected in the alternative as obvious. Claim 1 is clearly unobvious over the cited prior art and is therefore patentable as are any claims dependent thereon.

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The rejections of the identified claims on the grounds of obviousness have been carefully considered but are most respectfully traversed as a prima facie case of obviousness has not been established for the claimed subject matter.

Applicants also wish to direct the Examiner's attention to the basic requirements of a prima facie case of obviousness as set forth in the MPEP § 2143. This section states that to establish a prima facie case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Section 2143.03 states that all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). **If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.** In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

The rejection of claims 6-9 and 14-16 under 345 USC 103(a) as being obvious over Nakamura in view of Barrow has been carefully considered but is most respectfully traversed for the reasons discussed above. The Nakamura reference does not teach the reinforcing bumps of the present invention without a conductive function. Absent this feature or the suggestion to modify the prior art to arrive at this feature, a prima facie case of obviousness has not been established.

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In fig. 4 of US 5,894,410, the width of a dielectric area 42 is larger than the twice width of the solder ball. However, US 5,894,410 does not disclose the solder bump configuration wherein the first intermediate area has a width at least larger than the double of a width of the electrically conductive bump. Also, US 5,894,410 does not disclose the distance as described above being at least larger than the double of a width of the reinforced bump.

Moreover, there is no motivation in the prior art to modify the teachings of the prior art to arrive at the presently claimed invention. Applicants' specification may not be used as a teaching reference. In re Fritch, 23 USPQ 1780, 1784(Fed Cir. 1992) ("It is impermissible to engage in hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill the gaps."). Accordingly, it is most respectfully requested that this rejection be withdrawn.

The rejection of claims 10 and 11 under 35 USC 103(a) as obvious over Nakamura in view of Caletka et al has been carefully considered but is most respectfully traversed for the above reasons. That is, Caletka et al does not overcome the deficiencies of the primary reference concern the added limitation with no electrically conductive function as now required by amended claim 1. Claims 10 and 11 are dependent on claim 1 and include this limitation which is not suggested by the reference. Accordingly, it is most respectfully requested that this rejection be withdrawn.

The rejection of claim 18 under 35 USC 103(a) as being obvious over Nakamura in view of Farnworth et al has been carefully considered but is most respectfully traversed for the above reasons. That is, Farnworth et al does not overcome the deficiencies of the primary reference concern the added limitation with no electrically conductive function as now required by amended claim 1. Claim 18 is are dependent on claim 1 and include this limitation which is not suggested by the reference. The Franworth et al reference discloses the solder ball composed of the electrically conductive resin, but


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does not disclose the reinforced bump made of epoxy. Accordingly, it is most respectfully requested that this rejection be withdrawn.

In view of the above comments and further amendments to the claims, favorable reconsideration and allowance of all of the claims now present in the application are most respectfully requested.

Respectfully submitted,

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